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Differential Association and Patterns of Drug Use

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DIFFERENTIAL ASSOCIATION AND PATTERNS OF DRUG USE

A Thesis

Presented to

The Faculty of the Department of Sociology
The College of William and Mary in Virginia

In Partial Fulfillment

Of the Requirements for the Degree of
Master of Arts

by


Robert S. Gossweiler

1992

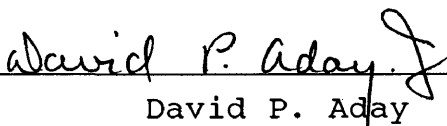
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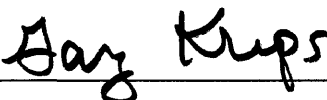
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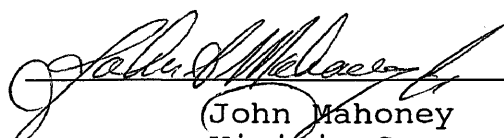
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To Anne, for her love and patience.

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ABSTRACT

Previous research repeatedly has used Guttman scaling techniques to describe hierarchical relationships among use patterns of various drug types. This research demonstrates consistently that cumulative (unidimensional) scales can be constructed for alcohol, marijuana, and cocaine use. Differential association theory suggests that such a developmental sequence should also include definitions favorable to law violation. Currently no research has examined the hierarchical relationship among drug use and definitions favorable to drug use.

The present research applies Sutherland's theory to drug use behavior and examines three types of definitions favorable to alcohol, marijuana, and cocaine use: those that concern legal consequences, those that concern physical or social consequences, and those that concern the social context of drug use. Three Guttman scales are constructed, each of which meets accepted criteria. The scales reveal a common hierarchical order among types of drug use. However, this order is different than that predicted by differential association theory. The author offers possible interpretations of these results and discusses their relevance for future research.

DIFFERENTIAL ASSOCIATION AND PATTERNS OF DRUG USE

CHAPTER I

INTRODUCTION AND THEORETICAL BACKGROUND

I. INTRODUCTION

Although previous research suggests that there are patterns of drug use across types of drugs, there is no comparable research on definitions or attitudes about drug use. Earlier studies have shown that patterns of drug use can be described using Guttman scaling techniques. These studies suggest that drug use may be unidimensional in character. Further, researchers have suggested that these patterns may reflect developmental sequences. In the current research, I apply Sutherland's theory of differential association to investigate definitions about drug use and their relationships to drug use. In addition, I identify three distinct types of drug related definitions and examine the relationships among these types of definitions and among patterns of drug use.

II. THEORETICAL BACKGROUND

Sutherland (1947) asserted that differences in patterns of association explain criminal behavior, and that cultural conflict and social disorganization are determinants of

differential association (Vold, 1958:36). Further, Sutherland attempted to answer the following question: "What specific things are learned through differential association?" (Sutherland in Cohen, 1956:22; Akers, 1973:35). Although Sutherland argued that people learn techniques of criminal behavior, he did not feel that this, in itself, distinguished the criminal from the non-criminal. More important, he thought, was "the evaluation of the behavior" (Sutherland quoted in Cohen, 1956:23). For Sutherland, evaluation includes not only rationalizations and motives, but also definitions of the situation as "appropriate" for criminal behavior (Sutherland quoted in Cohen, 1956:23). In specifying the causes of criminal behavior, Sutherland incorporated the term "definitions" to connect the individual to some broader social organization.

Sutherland failed to make clear, however, the specific nature of definitions favoring law violation. Some definitions may favor law violation by offering alternatives or qualifications to the legal prescriptions. For example, some definitions may question the legitimacy of the law or its applicability. Other definitions may favor law violation by denying social or physical harm, or consequence of the behavior (e.g., "a little grass never hurt anyone"). Also, definitions may be very general and support violation of any law at any time. Alternatively, they may be crime-specific, supporting one or a limited number of types of crime, but not crime generally. In this regard, Tittle,

Burke, and Jackson (1986) suggested two interpretations of differential association theory: "1) the greater the association with criminal definitions of any type, the greater the chance of some form of criminal behavior; or that 2) associations with definitions favorable to one type of criminal behavior will increase the chances of only that offense" (Tittle, Burke, and Jackson (1986:410). They explored the first interpretation, and their findings did not support their expectations with regard to marijuana use (Tittle, Burke, and Jackson, 1986). Possibly, various types of definitions are related dissimilarly to drug use.

It is not clear how definitions and drug-use behavior are related. It is possible that there is some sequential relationship among definitions and use patterns. Learning definitions that favor one kind of drug use may facilitate use of that drug. Definitions about drug use and use of one type of drug may facilitate the learning of definitions that support use of other drugs. Such a sequence might explain what some have described as the progressive ("slippery slope") nature of drug use.

The purpose of this study is to examine some of Sutherland's premises about definitions and law or norm violating behavior. Specifically, I will determine whether definitions favorable to drug use are related systematically to patterns of drug use. The following questions are explored:

1. Are general definitions favoring drug

use associated with patterns of drug use?

2. Are definitions concerning particular drugs related to the use of those drugs?
3. Are there different types of definitions that favor drug use?
4. Is it possible to identify a developmental sequence among those who have used several drugs?

CHAPTER II

CONCEPTS OF DIFFERENTIAL ASSOCIATION THEORY

Differential association theory argues that conflicting definitions in the social environment create the specific direction of motives, drives, attitudes, and rationalizations that favor law violation, and that an excess of such definitions promotes criminal behavior.¹ Definitions are "social messages," or "group value schemes" by which behavior is evaluated (Vold, 1958:197). Akers (1973:54) interprets definitions as normative meanings that are used for evaluating behavior. For Sutherland, the criteria for evaluation exist in the peer structure external to the individual: "There is a good deal of evidence that for most people, standards are determined by persons of their own status, who are in intimate association with them...." (Sutherland quoted in Cohen, 1956:170). Sutherland's sixth proposition is pivotal: "A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law." This is a statement of opposing social forces, rather than a statement of internalized processes (Sutherland, 1947; see also, Sutherland in Cohen, 1956). Sutherland suggests that the criminal exists between two

systems of opposing rules: "Differential association... is a statement of culture conflict from the point of view of the person who commits the crime. The two kinds of culture impinge on him or he has associations with the two kinds of cultures, and this is differential association" (Sutherland quoted in Cohen, 1956:21).

Although assimilation of the culture may include an internalization process, other sources of motives, drives, rationalizations and attitudes are present. Biological processes are one possible source of such motives and drives (e.g., hunger and taste). Gibbons (1971:272) suggests rationalizations and attitudes can emerge from experience, where "initial flirtations with deviance" produce criminal definitions and "the offender may supply his own reinforcement of these merging sentiments." Differential association theory does not consider internalized processes, nor does it speculate about their existence. Rather, it does not assume that these processes are necessary for an explanation of crime. Although Sutherland states that motives, drives, rationalizations, attitudes and definitions can be learned through association, his propositions focus on the direction that they take rather than on the internalized processes themselves. Differential association suggests only that the specific direction of motives, drives, rationalizations, and attitudes is learned.

Moreover, Sutherland's differential social organization is an explanation of crime in terms of "community, nation,

or other" rather than in terms of individual decisions to commit crime (Sutherland quoted in Cohen, 1956: 11). This focus at the aggregate level leads researchers to examine rates of violation rather than individual acts of crime.

McKay (1960) notes that with any possible combination of values:

conventional persons will be found at one extreme of the continuum and non-conventional persons at the other, with an infinite variety of combinations between. It should be noted that from this perspective the alleged problem of accounting for delinquency in non-delinquency areas, or non-delinquency in delinquency areas, does not exist. This approach to the problem has several values. First, it draws attention to the fact that in areas of conflicting value systems predictions about conduct can be made only in terms of proportions of the population and not for particular individuals; second, it draws attention to the fact that most persons can be expected to participate, in varying degrees, in activities representing both value systems and seldom in one or the other exclusively, and finally, it draws attention once more to the fact that the difference between the delinquent and the non-delinquent is only one of degree. Almost all children participate in some violative behavior (McKay, 1960:28).

As an explanation of rates of crime, differential association asserts "that crime is rooted in the social organization and is an expression of that social organization" (Sutherland, 1947:8). Vold (1958:192) suggests differential association is "an attempt to explain crime rates among certain groups rather than an attempt to explain why a certain individual behaves at a certain time in a certain manner."

The current research examines definitions as patterned

meanings and asks about relationships among these and pattern of drug use. For this paper, I assume that definitions are in the broader environment as social messages, and excess definitions favorable to law violation describe that point where general norm expectations among significant others favor law violation. Association is defined as contact with definitions and law-violating patterns in the environment. Associations with excess definitions favorable to law violation result in learning the specific direction of motives, drives, rationalizations, and attitudes. This study examines rates of definitions favorable to drug use among college students and employs cross-sectional data. In doing so, it does not test the causal relationship between definitions and behavior. I attempt to describe only patterned relationships among definitions and behavior, and do not expect to solve the problem of sequential priority necessary for any causal argument.

CHAPTER III

PREVIOUS RESEARCH ON DEFINITIONS AND DRUG USE

Empirical research suggests that the use of certain drugs is predictive of the use of other drugs. With the exception of Loiselle and Whitehead's research (1971), these studies suggest that these relationships are scalable using Guttman techniques (examples: Goode, 1969, Voss, Lacy, and Clayton, 1981; Yamaguchi and Kandel, 1984; Akers, 1985; see Sorenson and Brownfield, 1989). For this paper, scalability is the degree of unidimensionality within a set of phenomena (Gordon, 1977:89).² A set is said to be unidimensional when members in the set can be ordered along a single continuum of measurement (Shaw, 1957:172-176; Miller, 1977). The Guttman technique measures scalability among sets of phenomena (Miller, 1977:89; Shaw, 1957; see also Gordon, 1977). Loiselle and Whitehead's (1971) findings that drug use is not scalable was disputed by Single, Kandel and Faust (1974) who suggested that the study failed to distinguish between legal and illegal drugs. The inclusion of behaviors such as "glue sniffing" reduced the overall scalability of the items tested. By separating drug use into separate categories of legal drugs and illegal drugs, Single, Kandel and Faust (1974) constructed scales describing the drugs

Loiselle and Whitehead studied.

Several researchers (Kandel and Faust, 1975; Kandel et al., 1976; Kessler, Paton, and Kandel, 1976; Donovan and Jessor, 1983; Marcos, Bahr, and Johnson, 1986) suggested that the scalar relationships of drug use reflect the degree to which individuals are "involved" in drug use. Other researchers have questioned this approach and proposed common factor models as alternative descriptions of the data (examples: Martin, 1982; Hays et al., 1987). The common factor model assumes that drug use is caused by underlying, or "latent," factors that are freely intercorrelated with one another. In contrast, the involvement model suggests that there is a hierarchical order in drug use behavior and does not assume the existence of "latent" variables. Huba and Bentler (1982) and Donovan and Jessor (1983) reported that Guttman scales provide a better fit with cumulative drug use data than do common factor models. Kessler, Paton and Kandel (1976:633) felt so strongly that scalability gives insight into patterned behavior of drug use that they suggested "a Guttman scale analysis should be a first step in any attempt to uncover patterns of drug use." Accordingly, Guttman scales have been used repeatedly as measures of drug use (Single, Kandel, and Faust, 1974; Kandel and Faust, 1975, Kandel et al., 1976; Huba, Wingard and Bentler, 1981; Donovan and Jessor, 1983; Hays et al., 1987; Sorenson and Brownfield, 1989; Aday and Anderson, 1991). Some researchers have included drugs such as tobacco

and LSD in scales (examples: Kandel and Faust, 1975; Huba, Wingard, and Bentler, 1981; Krohn et al., 1985; Skinner, Massey, Krohn and Lauer, 1985), and most have included alcohol, marijuana, and cocaine (Single, Kandel and Faust, 1974; Kandel and Faust, 1975; Kandel et al, 1976; Kessler, Paton, and Kandel, 1976; Kandel, Kessler, and Margulies, 1978; Kandel, Margulies, and Darres 1978; Donovan and Jessor, 1983; Hays et al., 1987; Aday and Anderson, 1991.)

Previous research suggests that those who use cocaine are more likely than those who do not to use marijuana, and those who use marijuana are more likely than non-users to use alcohol (Huba, Wingard and Bentler, 1981; Donovan and Jessor, 1983; Hays et al., 1987; Sorenson and Brownfield, 1989). Because these relationships are scalable, some researchers have suggested that marijuana leads to, or is a stage in, cocaine use (Single, Kandel and Faust, 1974; Kandel and Faust, 1975; Kandel, Margulies, and Darres, 1978; see Cohen, 1972 for a history of the Stepping-Stone Hypothesis). Other researchers have argued strongly against the stage model, citing the non-reversibility of the relationship (examples: Cohen, 1972; Kandel, 1980; Martin, 1982; Donovan and Jessor, 1983; Hays et al., 1987). Even though cocaine use is indicative of marijuana use, marijuana use is not predictive of cocaine use (i.e., marijuana users and non-marijuana users are about equally likely to use cocaine).

Previous research demonstrates consistently that

individuals accepting definitions favorable to a particular drug are more likely to use it than are individuals accepting definitions unfavorable to the drug (Akers et al., 1979). Based on data collected about social activities, peer influences, and drug attitudes, a multifactorial study by Kandel et al. (1976:438-458) concludes that the use of marijuana is "clearly a result of attitudinal and interpersonal processes." Johnson (1988) reports that definitions have no or negligible impact on drug use. However, she suggests that her measures do not reflect object or context of drug use, and that measures of definitions may need to take into account the specific type of drug being studied and the specific social context in which the drug is being used.

Tittle, Burke, and Jackson (1986) constructed a Guttman scale that measured the specific direction of rationalizations and attitudes relating to law violation in general. The scale was comprised of rationalizations that "center on evaluation," and measured definitions concerning marijuana smoking, illegal gambling, tax cheating, theft, and assault (Tittle, Burke, and Jackson, 1986:412). Self-reported assessment of the likelihood of future drug use served as a measure of actual drug use. This measurement decision was based on earlier findings by Erickson (1980:91), who reported that "intent to use was a highly reliable predictor of actual reported consumption" in future use. The study reported that associations with definitions

favoring crime increased the likelihood of marijuana smoking. The study further suggested that "associations with definitions favorable to one type of criminal behavior will increase the chances of only that offense." The authors argued that drug use may require favorable rationalizations and attitudes particular to drug use (Tittle Burke, and Jackson, 1986:410).

The present study extends Tittle, Burke, and Jackson's research by examining the relationship between definitions favoring a particular type of violating behavior and patterns of those behaviors. Specifically, this research examines the relationships among definitions favorable to use of cocaine, marijuana, and alcohol and the pattern of use of those drugs.

CHAPTER IV

DESIGN OF THE CURRENT RESEARCH

Data

Data for this research were collected in a university campus survey (see Aday and Anderson, 1991). Seventeen-hundred (1700) questionnaires were mailed to students (on- and off-campus) of a mid-Atlantic university. Seven-hundred and twenty-nine (729) of these questionnaires were returned. This return rate of almost 43 percent represented approximately a 14 percent sample of the total undergraduate population of approximately 5,200 students. The vast majority of the university population were white, upper-middle class students. The survey was anonymous and voluntary. Aday and Anderson (1991) report that a comparison of sample statistics and population parameters suggests a lack of systematic bias within the sample. There was a slight over-sampling of females (by about 7.5%) and twenty-two year-olds (by about 6%), and a nominal under-representation of eighteen year-olds (by about 5%). When the questionnaires were examined for response inconsistency and distortions, one was extracted from the sample. For a more detailed description of the survey, see Aday and Anderson, 1991.³

Three Categories of Measures of Definitions

Favoring Alcohol Use

The survey includes items that measure at least three categories of definitions favorable to drug use (see Table 1).⁴ The first category of items measures favorable, drug-specific definitions concerning the laws and the consequences of those laws. For each drug type, there is one item that concerns legalizing use of that drug. The items reflect definitions that are unconditionally opposed to legal prohibition (Aday and Anderson, 1991). These items are similar to those used by Tittle, Burke, and Jackson (1986). The second category of items measures favorable, drug-specific definitions concerning social and physical consequences of drug use. These items are similar to those used by Yamaguchi and Kandel (1984) and contain analogous terms such as "negatively affected," "hurt," and "problems." The items do not distinguish between physical consequences and social consequences. The third category of items measures favorable, drug specific definitions concerning social context. Johnson (1988) suggested that definitions may need to take into account not only the specific type of drug being studied, but also the specific social context in which the drug is being used. Parallel items that concern time and place of drug use are used to measure these social context definitions.

The items were Likert scaled in the original survey, with "1" indicating strong disagreement with the item and

TABLE 1

Measures of Definitions Favorable to Drug Use

Category	Alcohol	Marijuana	Cocaine
Legal Consequences	The drinking age for alcohol should be lowered or eliminated.	Marijuana should be made legal.	Cocaine should be made legal.
Physical/Social Consequences	Alcohol can hurt the user only if he or she uses it too heavily.	Marijuana can hurt the user only if he or she uses it too heavily.	Cocaine can hurt the user only if he or she uses it too heavily.
Social Context -Place Related	Alcohol is OK if one uses it in the privacy of his or her own home.	Marijuana is OK if one uses it in the privacy of his or her own home.	Cocaine is OK if one does it in the privacy of his or her own home.
Social Context -Time Related	Drinking Alcohol is acceptable if it is done at the proper time, such as on weekends, or when one is not driving.	Marijuana is OK if it is used at the proper time, such as on weekends, or when one is not driving.	Cocaine is OK if it is used at the proper time, such as on weekends, or when one is not driving.

"5" indicating strong agreement.⁵ For current purposes, the responses are dichotomized so that a response of "4" or "5" indicates a definition favorable to drug use (1), and a response of "1," "2," or "3" indicates a lack of definitions favorable to drug use (0).

Measures of Drug Use

The survey included measures of age at first use. Responses to these items provide data on whether participants ever used alcohol, marijuana or cocaine. The responses were recoded into two categories as suggested by Sorenson and Brownfeild (1989): "Have used" (1) or "Have not used" (0).

Analysis and Results

A summary of frequencies for the 15 items that comprise measures of the variables is included in Table 2. Across types of drugs, alcohol is most widely used and evokes the highest proportion of favorable definitions. In contrast, cocaine is used by the smallest proportion of respondents and elicits the fewest favorable definitions.

Correlation analysis reveals a high degree of independence among definitions and use items (see Table 3). The most notable correlations are among the items concerning marijuana use and definitions favorable to marijuana use. Marijuana use and definitions concerning marijuana use are strongly correlated. The highest correlation ($r = .80$) is for the two items that measure context-related definitions

TABLE 2

Frequencies of Respondents that Report Drug Use or
Indicate Having Definitions Favorable to Drug Use

Measure	%	N
Drug Use		
Use of Alcohol	95%	(690)
Use of Marijuana	39%	(284)
Use of Cocaine	9%	(63)
Definitions Favorable to Drug Use and Concerning Legal Consequences		
Alcohol Specific	57%	(411)
Marijuana Specific	24%	(174)
Cocaine Specific	6%	(46)
Definitions Favorable to Drug Use and Concerning Physical or Social Consequences		
Alcohol Specific	47%	(336)
Marijuana Specific	28%	(205)
Cocaine Specific	6%	(41)
Place-Related Definitions Favorable to Drug Use and Concerning Social Context		
Alcohol Specific	70%	(509)
Marijuana Specific	27%	(200)
Cocaine Specific	6%	(46)
Time-Related Definitions Favorable to Drug Use and Concerning Social Context		
Alcohol Specific	84%	(610)
Marijuana Specific	27%	(194)
Cocaine Specific	3%	(19)

TABLE 3

Means, Standard Deviations, and Correlations of
Measures of Drug Use and Definitions Favorable to Drug Use

	UA	UM	UC	DA _L	DM _L	DC _L	DA _R	DM _R	DC _R	DA _{XP}	DM _{XP}	DC _{XP}	DA _{XT}	DM _{XT}	DC _{XT}
UA	1.00														
UM	.16	1.00	.06	.16	.10	-.02	.14	.11	.05	.19	.12	.03	.24	.12	-.05
UC	.38		1.00	.25	.42	.11	.12	.35	.14	.16	.48	.19	.14	.49	.12
DA _L	.09			1.00	.25	.20	.04	.14	.25	.03	.26	.30	.01	.30	.19
DM _L	.24				1.00	.17	.12	.23	.08	.21	.23	.10	.24	.24	.07
DC _L	.38					1.00	.13	.41	.16	.16	.66	.35	.10	.64	.21
DA _R	.02						1.00	.34	.18	.03	.29	.49	-.03	.25	.13
DM _R	.14							1.00	.14	.19	.52	.21	.17	.50	.12
DC _R	.18								1.00	.06	.18	.33	.01	.18	.37
DA _{XP}	.29									1.00	.29	.11	.36	.25	.04
DM _{XP}	.37										1.00	.37	.16	.80	.21
DC _{XP}	.42											1.00	.04	.38	.42
DA _{XT}	.18												1.00	.18	.05
DM _{XT}	.21													1.00	.21
DC _{XT}	.03														1.00
Mn	.95	.39	.09	.57	.24	.06	.47	.28	.06	.71	.28	.06	.84	.27	.03
Std	.21	.49	.28	.50	.43	.24	.50	.45	.23	.45	.45	.24	.37	.44	.16

VARIABLE DESCRIPTION

UA = Use of Alcohol
 UM = Use of Marijuana
 UC = Use of Cocaine
 DA_L = Definitions Favorable to Alcohol Use and Concerning Legal Consequences
 DM_L = Definitions Favorable to Marij. Use and Concerning Legal Consequences
 DC_L = Definitions Favorable to Cocaine Use and Concerning Legal Consequences
 DA_R = Definitions Favorable to Alcohol Use and Concerning Physical or Social Consequences
 DM_R = Definitions Favorable to Marij. Use and Concerning Physical or Social Consequences
 DC_R = Definitions Favorable to Cocaine Use and Concerning Physical or Social Consequences
 DA_{XP} = Place-Related Definitions Favorable to Alcohol Use and Concerning Social Context
 DM_{XP} = Place-Related Definitions Favorable to Marij. Use and Concerning Social Context
 DC_{XP} = Place-Related Definitions Favorable to Cocaine Use and Concerning Social Context
 DA_{XT} = Time-Related Definitions Favorable to Alcohol Use and Concerning Social Context
 DM_{XT} = Time-Related Definitions Favorable to Marij. Use and Concerning Social Context
 DC_{XT} = Time-Related Definitions Favorable to Cocaine Use and Concerning Social Context

about marijuana use. The range of correlations for marijuana related items ($r = .35$ to $.80$) suggests a relatively stable constellation of items concerning marijuana definitions and behavior. For those correlations above $.40$, the majority are correlations between measures of definitions. The correlations overall are moderately positive, and there are only three marginally negative correlations ($r \geq -.05$).

In an effort to explore the structure of relationships among the variables, a principle components factor analysis was used with orthogonal rotation (eigenvalue 1 criterion) (cf. Stapleton, Aday, and Ito, 1982:552, for a similar analytical procedure). The principle components factor analysis revealed three interpretable factors. Inspection of the rotated factor solutions (with the number of factors varying between 3 and 5) suggest that these factors are highly stable. The three factor solution accounts for over 49 percent of the variance of the entire data set and loads on all 15 of the items examined. For subsequent analyses, the factors are considered as representing dimensions of drug-use behavior, including both drug use and definitions favorable to drug use. Table 4 presents the rotated factor loadings.

Factor 1 represents a dimension of drug use behavior specific to the use of marijuana. It includes the use of marijuana and favorable definitions concerning the legality, social context, and social or physical consequences of marijuana use. This factor accounts for approximately 29

TABLE 4

Factor Loadings for Measures of Drug Use
and Definitions Favorable to Drug Use

Item	Factor 1	Factor 2	Factor 3
Marijuana is OK if one uses it in the privacy of his or her own home.	.84	.16	.18
Marijuana is OK if it is used at the proper time, such as on weekends, or when one is not driving.	.84	.16	.17
Marijuana should be made legal.	.79	.20	.06
Use of Marijuana	.66	.04	.17
Marijuana can hurt the user only if he or she uses it too heavily.	.58	.06	.34
Cocaine is OK if it is used at the proper time, such as on weekends, or when one is not driving.	.06	.74	.06
Cocaine can hurt the user only if he or she uses it too heavily.	-.04	.72	.18
Cocaine is OK if one does it in the privacy of his or her own home.	.33	.70	-.03
Cocaine should be made legal.	.39	.44	-.19
Use of Cocaine	.38	.40	-.06
Drinking Alcohol is acceptable if it is done at the proper time, such as on weekends, or when one is not driving.	.06	-.03	.72
Alcohol is OK if one uses it in the privacy of his or her own home.	.17	.01	.62
Alcohol can hurt the user only if he or she uses it too heavily.	.04	.19	.57
Use of Alcohol	.07	-.05	.53
The drinking age for alcohol should be lowered or eliminated.	.31	.02	.40
Eigenvalue	4.29	1.80	1.30
Percent of Variance	29%	12%	9%

percent of the variance of the entire data set.

Factor 2 contains a cluster of items relating to cocaine and its use. It includes the use of cocaine, and definitions favorable to cocaine use and concerning the legality, social context, and social or physical consequences of cocaine use. Factor 2 accounts for about 12 percent of the variance of the entire data set.

Factor 3 captures a dimension specific to the use of alcohol. It includes the use of alcohol and favorable definitions concerning legality, social context, and social or physical consequences of alcohol use. This factor also loads on the item concerning the social or physical consequences of marijuana use, suggesting the possibility of definitions that cross drug types. This factor accounts for approximately 9 percent of the variance of the entire data set.

The factor analysis suggests that favorable definitions concerning legality, social context, and social or physical consequences of drug use are related systematically to drug use. The patterns suggest that drug use and definitions favorable to use may be arranged in some scalar fashion. Previous research and theory (as reviewed earlier) suggests that such a scale should reflect the following pattern:

Those who have used cocaine should have favorable definitions concerning cocaine use.

Those who have favorable definitions concerning cocaine use should have used marijuana.

Those who have used marijuana should have favorable

definitions concerning marijuana use.

Those who have favorable definitions concerning marijuana use should have used alcohol.

And, those who have used alcohol should have favorable definitions concerning alcohol use.

Definition and use items were analyzed using the SAS (5.8) Guttman procedure. The Guttman procedure analyzes the hierarchical structure within sets of items and creates scales that maximize this structure. Scales must meet several, widely accepted criteria before conclusions about unidimensionality can be made (see Edwards, 1957; Shaw, 1967; Miller, 1977; and Gordon, 1977). Guttman (1947) suggested three minimum criteria: 1) there must be a full range of marginal distributions where the reproducibility of a particular item is not less than the percentage of responses falling into a single category; 2) error cannot exceed the amount of non-error in each item; and 3) errors must be spurious and not grouped. In addition, the general literature suggests two indexes as measures of significance for Guttman scale: the coefficient of reproducibility (CR) and the coefficient of scalability (CS) (Donovan and Jessor, 1983). CR is an index that communicates the accuracy of scales to represent cumulative, unidimensional properties among items. As CR approaches "1," the accuracy of predicting the response pattern from the scale score increases (Edwards, 1947). In other words, CR is an indicator of the degree of hierarchy in the set of items, with "1" representing a perfect hierarchical arrangement

TABLE 5

Guttman Scale Analysis of Patterns of Alcohol, Marijuana, and Cocaine Use and Favorable Definitions Concerning the Legal Use of Those Drugs

Scale Score	Description	Coded Response to Item						Freq.	
		UA	DA	UM	DM	UC	DC	%	N
"Pure" Scale Types									
6	All 3 drugs w/Def.fav. all 3 drugs	1	1	1	1	1	1	2%	(12)
5	All 3 drugs w/Def.fav. alc.& marij.	1	1	1	1	1	0	2%	(16)
4	Alc.& Marij. w/Def.fav. alc.& marij.	1	1	1	1	0	0	9%	(66)
3	Alc.& Marij. w/Def.fav. alc.	1	1	1	0	0	0	11%	(77)
2	Alc. w/Def.fav. alc.	1	1	0	0	0	0	23%	(168)
1	Alc. w/o defs.fav.	1	0	0	0	0	0	27%	(191)
0	Abstainers w/o defs.fav.	0	0	0	0	0	0	3%	(24)

Total Frequencies for "Pure" Scale Types: 77% (554)

Coefficient of Reproducibility .92
 Minimum Marginal Reproducibility .79
 Coefficient of Scalability .64

"Error" Scale Types

5	Alc. & Marij. w/Def.fav. all 3 drugs	1	1	1	1	0	1	2%	(11)
5	All 3 drugs w/Def.fav. marij.& coc.	1	0	1	1	1	1	<1%	(1)
5	All 3 drugs w/Def.fav. alc.& coc.	1	1	1	0	1	1	<1%	(1)
4	Marij. w/Def.fav. all 3 drugs	0	1	1	1	0	1	<1%	(1)
4	All 3 drugs w/Def.fav. marij.	1	0	1	1	1	0	1%	(8)
4	Alc. w/Def.fav. all 3 drugs	1	1	0	1	0	1	2%	(12)
4	Alc.& Marij. w/Def.fav. alc.& coc.	1	1	1	0	0	1	<1%	(1)
4	All 3 drugs w/Def.fav. alc.	1	1	1	0	1	0	2%	(15)
3	Alc. w/Def.fav. marij.& coc.	1	0	0	1	0	1	<1%	(2)
3	Alc. w/Def.fav. alc.& marij.	1	1	0	1	0	0	2%	(17)
3	Alc. w/Def.fav. alc.& coc.	1	1	0	0	0	1	<1%	(2)
3	Alc.& Marij. w/Def.fav. marij.	1	0	1	1	0	0	2%	(17)
3	All 3 drugs w/o defs.fav.	1	0	1	0	1	0	1%	(9)
2	Alc. & Marij. w/o defs.fav.	1	0	1	0	0	0	6%	(45)
2	Alc. w/Def.fav. marij.	1	0	0	1	0	0	1%	(10)
1	Abstainers w/Def.fav. coc.	0	0	0	0	0	1	<1%	(2)
1	Abstainers w/Def.fav. marij.	0	0	0	1	0	0	<1%	(1)
1	Abstainers w/Def.fav. alc.	0	1	0	0	0	0	1%	(6)

Total Frequencies for Error Types: 23% (161)

Total N: 715
 N Missing: 14

VARIABLE DESCRIPTIONS

UA - Use of Alcohol

UM - Use of Marijuana

UC - Use of Cocaine

DA - Definitions Favorable to Alcohol Use and Concerning Legal Consequences

DM - Definitions Favorable to Marij. Use and Concerning Legal Consequences

DC - Definitions Favorable to Cocaine Use and Concerning Legal Consequences

(Edwards, 1947). A related measure, the minimum marginal reproducibility (MMR), indicates the accuracy in predicting individual responses from the modal responses. In this way, MMR measures the nominally expected degree of heirarchy in a set of items. CS is an index that describes the scale's improvement over MMR in terms of the greatest possible improvement (Donovan and Jessor, 1983).⁶ The greater value of CS, the less chance of error in assuming the existence of a cumulative, unidimensional property (Donovan and Jessor, 1983). CS, then, is a measure of significance, while CR is a measure of the degree of unidimensionality. As a general rule, scales with CR greater than or equal to .90 and CS greater than or equal to .60 are considered significant evidence of cumulative, unidimensional properties (Donovan and Jessor, 1983).

The results of the Guttman scale analyses of items concerning legal issues and drug use are presented in Table 5. CR (.92) and CS (.64) are sufficiently high to suggest that these items measure some social reality that is significantly cumulative and unidimensional (Donovan and Jessor, 1983). However, examination of the scale reveals an order that is different than was expected. Specifically, the scale suggests the following:

Those who have favorable definitions concerning legality of cocaine use have used cocaine.

Those who have used cocaine also have favorable definitions concerning the legality of marijuana use.

Those who have favorable definitions concerning the

legality of marijuana use have used marijuana.

Those who have used marijuana also have favorable definitions concerning the legality of alcohol use.

And, those who have favorable definitions concerning the legality of alcohol use have used alcohol.

Tables 6 and 7 present the results of the Guttman analysis of the items concerning drug use and the social context of drug use. The scale including place-related items ($CR=.93$; $CS=.66$) and the scale including time-related items ($CR=.95$; $CS=.71$) both suggest that there is a significant, cumulative, unidimensional property among drug use and context-related definitions favorable to drug use. The results suggest an order among definitions favorable to drug use that is identical to the previous scale concerning legal issues. Specifically, the scales that include definitions concerning the social context of drug use present the following order:

Those who have context-related definitions favorable to cocaine use have used cocaine.

Those who have used cocaine also have context-related definitions favorable to marijuana use.

Those who have context-related definitions favorable to marijuana use have used marijuana.

Those who have used marijuana also have context-related definitions favorable to alcohol use.

And, those who have context-related definitions favorable to alcohol use have used alcohol.

Table 8 presents the findings of the Guttman scale analysis of measures of favorable definitions concerning the physical or social consequences of drug use. For the

TABLE 6

Guttman Scale Analysis of Patterns of Alcohol, Marijuana, and Cocaine Use and Place Related Favorable Definitions Concerning the Social Context of Using Those Drugs

Scale Score	Description	Coded Response to Item						Freq.	
		UA	DA	UM	DM	UC	DC	%	N
"Pure" Scale Types									
6	All 3 drugs w/Def.fav. all 3 drugs	1	1	1	1	1	1	2%	(15)
5	All 3 drugs w/Def.fav. alc.& marij.	1	1	1	1	1	0	3%	(20)
4	Alc.& Marij. w/Def.fav. alc.& marij.	1	1	1	1	0	0	13%	(90)
3	Alc.& Marij. w/Def.fav. alc.	1	1	1	0	0	0	10%	(70)
2	Alc. w/Def.fav. alc.	1	1	0	0	0	0	33%	(231)
1	Alc. w/o Def.fav.	1	0	0	0	0	0	17%	(120)
0	Abstainers w/o Def.fav.	0	0	0	0	0	0	3%	(23)
Total Frequencies for "Pure" Scale Types: 80% (569)									
Coefficient of Reproducibility		.93							
Minimum Marginal Reproducibility		.81							
Coefficient of Scalability		.66							
"Error" Scale Types									
5	All 3 drugs w/Def.fav. marij.& coc.	1	0	1	1	1	1	<1%	(2)
5	All 3 drugs w/Def.fav. alc.& coc.	1	1	1	0	1	1	<1%	(1)
5	Alc.& Marij. w/Def.fav. all 3 drugs	1	1	1	1	0	1	2%	(13)
4	Marij. w/Def.fav. all 3 drugs	0	1	1	1	0	1	<1%	(1)
4	Alc.& Marij. w/Def.fav. marij.& coc.	1	0	1	1	0	1	<1%	(1)
4	All 3 drugs w/Def.fav. marij.	1	0	1	1	1	0	<1%	(4)
4	Alc. w/Def.fav. all 3 drugs	1	1	0	1	0	1	1%	(9)
4	All 3 drugs w/Def.fav. alc.	1	1	1	0	1	0	1%	(10)
3	All 3 drugs w/o Def.fav.	1	0	1	0	1	0	1%	(9)
3	Alc.& Marij. w/Def.fav. marij.	1	0	1	1	0	0	<1%	(4)
3	Alc. w/Def.fav. alc.& coc.	1	1	0	0	0	1	<1%	(2)
3	Alc. w/Def.fav. alc.& marij.	1	1	0	1	0	0	5%	(33)
2	Alc. w/Def.fav. coc.	1	0	0	0	0	1	<1%	(1)
2	Alc. w/Def.fav. marij.	1	0	0	1	0	0	<1%	(4)
2	Alc. & Marij. w/o Def.fav.	1	0	1	0	0	0	5%	(36)
1	Abstainers w/Def.fav. alc.	0	1	0	0	0	0	1%	(10)
Total Frequencies for "Error" Types: 20% (140)									
								Total N:	709
								Missing N:	20

VARIABLE DESCRIPTION

UA - Use of Alcohol

UM - Use of Marijuana

UC - Use of Cocaine

DA - Place-Related Definitions Favorable to Alcohol Use and Concerning Social Context

DM - Place-Related Definitions Favorable to Marij. Use and Concerning Social Context

DC - Place-Related Definitions Favorable to Cocaine Use and Concerning Social Context

TABLE 7

Guttman Scale Analysis of Patterns of Alcohol, Marijuana, and Cocaine Use
Time Related Favorable Definitions Concerning the Social Context of Using
Those Drugs

Scale Score	Description	Coded Response to Item						Freq.	
		UA	DA	UM	DM	UC	DC	%	N
"Pure" Scale Types									
6	All 3 drugs w/Def.fav. all 3 drugs	1	1	1	1	1	1	1%	(7)
5	All 3 drugs w/Def.fav. alc.& marij.	1	1	1	1	1	0	5%	(35)
4	Alc.& Marij. w/Def.fav. alc.& marij.	1	1	1	1	0	0	13%	(96)
3	Alc.& Marij. w/Def.fav. alc.	1	1	1	0	0	0	14%	(98)
2	Alc. w/Def.fav. alc.	1	1	0	0	0	0	41%	(294)
1	Alc. w/o Def.fav.	1	0	0	0	0	0	9%	(66)
0	Abstainers w/o Def.fav.	0	0	0	0	0	0	3%	(19)
Total Frequencies for "Pure" Scale Types: 86% (615)									
Coefficient of Reproducibility		.95							
Minimum Marginal Reproducibility		.84							
Coefficient of Scalability		.71							
"Error" Scale Types									
5	All 3 drugs w/Def.fav. marij.& coc.	1	0	1	1	1	1	<1%	(1)
5	Alc.& Marij. w/Def.fav. all 3 drugs	1	1	1	1	0	1	<1%	(5)
4	Marij. w/Def.fav. all 3 drugs	0	1	1	1	0	1	<1%	(1)
4	All 3 drugs w/Def.fav. marij.	1	0	1	1	1	0	<1%	(1)
4	Alc. w/Def.fav. all 3 drugs	1	1	0	1	0	1	<1%	(2)
4	All 3 drugs w/Def.fav. alc.	1	1	1	0	1	0	2%	(12)
3	All 3 drugs w/o Defs.fav.	1	0	1	0	1	0	1%	(7)
3	Alc.& Marij. w/Def.fav. marij.	1	0	1	1	0	0	<1%	(5)
3	Alc. w/Def.fav. alc.& coc.	1	1	0	0	0	1	<1%	(2)
3	Alc. w/Def.fav. alc.& marij.	1	1	0	1	0	0	5%	(37)
2	Abstainers w/Def.fav. alc.& coc.	0	1	0	0	0	1	<1%	(1)
2	Alc. w/Def.fav. marij.	1	0	0	1	0	0	<1%	(3)
2	Alc. & Marij. w/o Defs.fav.	1	0	1	0	0	0	2%	(13)
1	Abstainers w/Defs.fav. alc.	0	1	0	0	0	0	2%	(13)
Total Frequencies for "Error" Types: 14% (103)									
Total N:								718	
Missing N:								11	

VARIABLE DESCRIPTION

UA - Use of Alcohol

UM - Use of Marijuana

UC - Use of Cocaine

DA - Time-Related Definitions Favorable to Alcohol Use and Concerning Social Context

DM - Time-Related Definitions Favorable to Marij. Use and Concerning Social Context

DC - Place-Related Definitions Favorable to Cocaine Use and Concerning Social Context

TABLE 8

Guttman Scale Analysis of Patterns of Alcohol, Marijuana, and Cocaine Use and Favorable Definitions Concerning Physical or Social Consequences of Using Those Drugs

Scale Score	Description	Coded Response to Item						Freq.	
		UA	DA	UM	DM	UC	DC	%	N
"Pure" Scale Types									
6	All 3 drugs w/Def.fav. all 3 drugs	1	1	1	1	1	1	1%	(9)
5	All 3 drugs w/Def.fav. alc.& marij.	1	1	1	1	1	0	2%	(15)
4	Alc.& Marij. w/Def.fav. alc.& marij.	1	1	1	1	0	0	10%	(68)
3	Alc.& Marij. w/Def.fav. alc.	1	1	1	0	0	0	6%	(40)
2	Alc. w/Def.fav. alc.	1	1	0	0	0	0	17%	(118)
1	Alc. w/o Defs.fav.	1	0	0	0	0	0	29%	(208)
0	Abstainers w/o Defs.fav.	0	0	0	0	0	0	4%	(27)

Total Frequencies for "Pure" Scale Types: 68% (485)

Coefficient of Reproducibility .89
 Minimum Marginal Reproducibility .78
 Coefficient of Scalability .51

"Error" Scale Types									
5	All 3 drugs w/Def.fav. marij.& coc.	1	0	1	1	1	1	<1%	(1)
5	All 3 drugs w/Def.fav. alc.& coc.	1	1	1	0	1	1	<1%	(3)
5	Alc.& Marij. w/Def.fav. all 3 drugs	1	1	1	1	0	1	<1%	(6)
4	All 3 drugs w/Def.fav. coc.	1	0	1	0	1	1	<1%	(2)
4	Alc.& Marij. w/Def.fav. marij.& coc.	1	0	1	1	0	1	<1%	(1)
4	All 3 drugs w/Def.fav. marij.	1	0	1	1	1	0	<1%	(5)
4	Alc. w/Def.fav. all 3 drugs	1	1	0	1	0	1	<1%	(3)
4	Alc.& Marij. w/Def.fav. alc.& Coc.	1	1	1	0	0	1	<1%	(2)
4	All 3 drugs w/Def.fav. alc.	1	1	1	0	1	0	<1%	(5)
3	Alc. w/Def.fav. marij.& coc.	1	0	0	1	0	1	<1%	(1)
3	Alc.& Marij. w/Def.fav. coc.	1	0	1	0	0	1	<1%	(1)
3	All 3 drugs w/o Def.fav.	1	0	1	0	1	0	3%	(22)
3	Alc.& Marij. w/Def.fav. marij.	1	0	1	1	0	0	4%	(27)
3	Alc. w/Def.fav. alc.& Coc.	1	1	0	0	0	1	1%	(9)
3	Alc. w/Def.fav. alc.& marij.	1	1	0	1	0	0	7%	(47)
2	Marij. w/Def.fav. marij.	0	0	1	1	0	0	<1%	(1)
2	Alc. w/Def.fav. coc.	1	0	0	0	0	1	<1%	(1)
2	Alc. w/Def.fav. marij.	1	0	0	1	0	0	6%	(17)
2	Alc. & Marij. w/o Defs.fav.	1	0	1	0	0	0	10%	(69)
1	Abstainers w/Def.fav. alc.	0	1	0	0	0	0	<1%	(5)
1	Abstainers w/Def.fav. marij.	0	0	0	1	0	0	<1%	(1)

Total Frequencies for "Error" Types: 32% (229)

Total N: 714
 Missing N: 15

VARIABLE DESCRIPTION

UA - Use of Alcohol

UM - Use of Marijuana

UC - Use of Cocaine

DA - Definitions Favorable to Alcohol Use and Concerning Physical or Social Consequences

DM - Definitions Favorable to Marij. Use and Concerning Physical or Social Consequences

DC - Definitions Favorable to Cocaine Use and Concerning Physical or Social Consequences

resulting scale, neither CR (.89) nor CS (.51) meet the accepted criteria of scalability. However, the order of items included in the scale is identical to that of the previous scales.

For each of the previous scales (whether they meet the criteria or not), there are 58 logically possible patterns of items that describe noncumulative, or non-hierarchical, arrangements (cf., Donovan and Jessor, 1983). Analysis of these patterns, or "error types," can reveal sub-populations that report alternative hierarchical orders (see, Edwards, 1957). For the scale including definitions about legal consequences, 77 percent of the respondents report patterns that can be predicted by the Guttman scores, or "pure" scale types, and there are 18 reported error types (see Table 5). Of these 18, 12 error types contained 10 or fewer respondents and accounted for 6 percent of the respondents. Five percent of the respondents for this scale reported patterns that describe definitions favorable to drug use as hierarchically preceding drug use. For the scale including definitions concerning social context and that are place-related, 80 percent of the respondents fall into pure scale types (see Table 6). There are 16 error types for this scale, and 13 contain 10 or fewer respondents, accounting for 8 percent of the respondents. At least 8 percent of the respondents reported patterns describing favorable definitions concerning social context of drug use as hierarchically preceding drug use. For the scale including

definitions concerning social context and that are time-related, 86 percent of the respondents fall into pure scale types (see Table 8). There are 14 error types for this scale, and 10 contain 10 or fewer respondents, accounting for 4 percent of the respondents. Nine percent of the respondents reported patterns describing favorable definitions concerning social context of drug use as hierarchically preceding drug use. For the scale with definitions about social or physical harm of drug use, 68 percent of the respondents fall into pure scale types (see Table 6). There are 21 error types with 16 of these containing 10 or fewer respondents, accounting for at least 7 percent of the respondents. Eight percent of the respondents included in this scale reported patterns describing favorable definitions concerning social or physical consequences of drug use as hierarchically preceding drug use. For all the scales, examination of the error types reveals that 5 to 7 percent of the respondents report an alternative order identical to the order suggested by Sutherland (cf., Donovan and Jessor, 1983:546).

CHAPTER V

DISCUSSION

The analysis of data from a sample of college students suggests that definitions favoring drug use that concern laws or the social context of drug use are related hierarchically to drug use. In addition, favorable definitions concerning physical or social consequences are related to drug use, but not in unidimensional or hierarchical fashion. The present findings suggest that favorable definitions and drug use are related, but not necessarily as suggested by differential association theory. Although the majority of respondents fell into the pure scale type that describes drug use as hierarchically preceding definitions favorable to drug use, a notable percentage reported patterns that describe definitions favorable to drug use as preceding drug use.

The findings of this study raise important theoretical questions about attempts to explain rates of drug use in terms of favorable definitions. It could be that the consequences of definitions are more variable than is suggested by differential association theory. Alternatively, there may be other types of definitions that were not measured in the current study, and these are related to drug

use as suggested by Sutherland. Table 9 presents data that describe the relationship between drug use and definitions favoring drug use (e.i., the proportions of respondents who report at least one drug-specific, favorable definition). Only 3 percent of those who have one of the four measured definitions favorable to alcohol did not use alcohol, suggesting that favorable definitions of alcohol use are, indeed, important. In contrast, definitions favoring marijuana are not related as powerfully to marijuana use- 36 percent of those who have favorable definitions about marijuana did not report using marijuana. Still, a majority of those with favorable definitions use marijuana. The obverse also is true: the majority of those without favorable definitions do not use marijuana. The trend continues with cocaine use: those with definitions favoring cocaine use are substantially more likely than those without to use cocaine.

Sykes and Matza (1957) argued that definitions serve as rationalizations that reduce social constraints and facilitate crime. Perhaps definitions favorable to drug use are related to drug use in a similar fashion. If this is so, the findings suggest that different types of definitions have different facilitating effects. Moreover, the relationship may be tempered by characteristics of the drug within society. For example, some drugs are readily available and prohibited only moderately. Other drugs are hard to obtain and subject to strict control. The social

TABLE 9

Proportions of Drug Use Among Respondents Having Definitions
Favorable to Drugs Use and Those Who Do Not Have
Definitions Favorable to Drug Use

	<u>Alcohol</u> (n=724)		<u>Marijuana</u> (n=728)		<u>Cocaine</u> (n=728)	
	Defs	No Defs	Defs	No Defs	Defs	No Defs
Use	97%	72%	64%	20%	30%	5%
No Use	3%	28%	36%	80%	70%	95%

constraints on cocaine use are more prohibitive than are those on alcohol use. Consequently, cocaine use may require facilitating definitions of a different type than does alcohol use (e.g. situational specific definitions). This would suggest that the unidimensional property being examined here is social constraint rather than involvement in drug use.

It also may be that there are other classes of variables that affect drug use and the relationship between definitions and drug use. With a multi-factor approach, future research may find hierarchical relationships of favorable definitions compelling explanations of differential drug use. And again, there is no reason to believe that the definitions measured here are exhaustive of definitions favorable to drug use. Additional research is needed to examine the relationship between social control and definitions favorable to drug use. From this, we may discover that certain definitions are neutralizing agents while others act as catalysts. In either case, this study provides encouragement for those who believe that drug definitions and drug use are related in a systematic fashion.

NOTES

1. See the research appendix for a more detailed discussion of interpretations of differential association theory.
2. Scalability can also reflect order within a set of multidimensional phenomena, but that is beyond the intentions and scope of this paper.
3. The sample may usefully represent middle and upper middle class, white, college students. The primary concern, however, is with analytical relationships not with generalizing to a recognizable population.
4. Three items (one per drug-type) that concerned both personal consequences and physical harm initially were included in the analysis. The items used different phraseologies that I believed communicated similar dimensions of drug use. Analysis of the items suggested that the statements, in fact, did not measure similar dimensions of definitions across drug-types. Because these items were poor measures for documenting similar definitions across drug use, their analysis is not included in this paper.
5. See Appendix B for original items and frequencies.
6. See Edwards (1956) for a more complete discussion of the CR and the MMR, and see Donovan and Jessor (1983) for a discussion of the CS. The mathematical equation for the CS is:

$$CS = \frac{CR - MMR}{1 - MMR}$$

RESEARCH APPENDIX

RESEARCH APPENDIX

FIVE MODELS OF DIFFERENTIAL ASSOCIATION THEORY

Because Sutherland failed to specify the exact meanings of the terms "association," "excess," and "definitions," empirical testing of differential association theory has remained problematic (Cressey, 1952; Short, 1960; Reiss and Rhodes, 1964:5-6; Akers, 1973:40). Short writes:

A major reason for the lack of research directed specifically to the testing of differential association lies in the difficulty of operationalizing the principle as Sutherland stated it in terms of 'definitions favorable to violation of law over definitions unfavorable to violation of law' (21). The equation involving such associations and definitions is extremely difficult to conceive in operational terms (Short, 1960:15-16, quoting Sutherland and Cressey, 1955).

Attempting to make Sutherland's theory amendable to empirical testing, researchers often have reformulated Sutherland's propositions (examples: Glaser, 1956; Jeffery, 1959; Burgess and Akers, 1966; Adams, 1973).

Tittle, Burke and Jackson (1986) suggest five causal models that represent a majority of interpretations found in the literature. One model postulates that associations cause criminal behavior directly (examples: Glaser, 1956, 1960; Short, 1957, 1958; Mathews, 1968; Tec, 1972; Hindelang, 1973; Adams, 1973, 1974). Another model asserts

that individuals who associate with excess definitions favorable to violation learn the direction of motives, drives, rationalizations, and attitudes that lead to criminal behavior (examples: Sykes and Matza, 1957; Liska, 1969; Voss, 1969; Andrews, 1980; Jaquith, 1981; Matsueda, 1982). The next model suggests that motives, drives, rationalizations, and attitudes cause criminal behavior and does not attempt to explain their sources (examples: Gibbons, 1971; Nettler, 1978). The fourth model argues that definitions in the environment cause criminal behavior, and does not include motives, drives, rationalizations, or attitudes in the explanation of crime (examples: Cressey 1952, 1954; Vold, 1958; McKay, 1960; Burgess and Akers, 1966). A final model combines the first and the second models mentioned. It proposes that associations cause both the criminal behavior directly and the learning of motives, drives, rationalizations, and attitudes which cause criminal behavior (examples: Jeffery, 1965; Jensen, 1972; Griffin and Griffin, 1978; Akers et al., 1979).

These models represent approaches taken by researchers in operationalizing differential association theory, and each interpretation differs in the empirical measurement of Sutherland's terms.

The content of a theory is given by the definitions -- not the naming -- of its variables; and by specification of the functional relationships among them. Changing either of these changes the theory; or, if the theory is equivocal or vague in either respect to begin with, it amounts to creating the theory. In

'operationalizing' a theory to make it 'researchable,' precisely what one must do is define the variable and their functional relationships. Research on a theory such as differential association, the variables and functional relationships of which, though they are not without meaning, are so imprecisely defined, is necessarily a theoretically creative task (Short, 1960:24).

In order to illuminate the difficulties of operationalizing Sutherland's concepts, there follows a review of these models. I begin with an examination of the term, "associations" using the first model mentioned. I proceed with the second model to differentiate learning processes from social processes. With the next model, I investigate the term "definitions" and the explanation of criminal behavior in terms of processes internal to the individual. Finally, I examine "excess definitions" as a sociological concept using the fourth model. Because the last model mentioned is a composite of the first and second models, it is represented automatically in the discussions of the other models.

I. THE "ASSOCIATION" MODEL

The association model refers to research that focuses on associations as the cause of criminal behavior. Sutherland (1947:164) stated, "the active factor [of becoming delinquent] is the assimilation of delinquency from associations with delinquents." Statements like these focus some research efforts on the amount of contact between delinquents and significant others (examples: Glaser, 1956,

1960; Mathews, 1968; Tec, 1972; Adams, 1973, 1974; Gauvreau, 1991). Vold (1958:194) argues that this conceptualization of association is problematic: "One of the persistent problems that always has bedeviled the theory of differential association is the obvious fact that not everyone in contact with criminality adopts or follows the criminal pattern." Sutherland also realized that criminal contact did not explain criminal behavior in itself, and offered differential association as a solution: "Some persons who have many intimate contacts with criminals refrain from crime and... this is probably due to the counteracting influence of associations with anti-criminal behavior" (Sutherland quoted in Cohen, 1956:23). Cressey offers the further distinction that "association" does not denote contact with criminal individuals but indicates contact with the criminal patterns and definitions themselves (Sutherland and Cressey, 1978:84).

Another criticism of the association model concerns the causal order between associations and criminal behavior. Reiss and Rhodes (1964:5-6) suggest that empirical tests of causal arguments must include longitudinal data, "Criticism [of differential association] rests on a logical argument that empirical evidence of association in delinquent acts merely demonstrates concomitance of behavior, whereas a temporal sequence of the effects of association must be demonstrated." The Gluecks (1950, 1956) have argued that it is not associations that cause crime, but rather, that it is

the criminal patterns and definitions that cause associations.

...the Gluecks have long argued that the causal structure describing the relationship between delinquent associations and delinquent behavior is the reverse of that hypothesized in differential association theory; that is, rather than delinquents associations causing delinquent behavior, they hypothesize that people with delinquent tendencies seek out others with such tendencies. They further note that this is simply a special case of the common sense notion that 'birds of a feather flock together' (Liska, 1969:486).

Liska (1969:489) argues that the conflation of criminal behavior and associations may not allow an empirical solution to this problem: "...exposure to delinquent attitudes (particularly in attractive others) results in the formation of... attitudes, and... attitude similarity results in mutual attractiveness and social interaction, such that delinquents are attracted to and interact with other delinquents and nondelinquent are attracted to and interact with other nondelinquent." When considered with Reiss and Rhodes' argument of temporal order and causal agents, Liska's statement implies that the causal relationship between associations and criminal behavior may be difficult to establish empirically. Recently, Gauvreau (1991) used longitudinal data to test the relationship between associating with delinquent others and delinquent behavior. She reports that association with delinquent others follows delinquent behavior, and that association with delinquent others appears to be a maintaining factor in

delinquent behavior rather than a cause.

Although an empirical solution to this causal argument may be found in a longitudinal study of associations and behavior, the association model makes the assumption that associations directly cause criminal behavior. Sutherland clearly states that it is not the number of people with whom the delinquent associates, but rather the "frequency, duration, priority, and intensity" of the association with definitions favorable to delinquent behavior (Sutherland 1947:7).¹ The association model overlooks Sutherland's use of "definitions," and "motives, drives, rationalizations, and attitudes" as causal agents. Voss (1969:383) argues that Sutherland emphasized associations as a part of the "processes of learning, communication and interaction." In Voss' view, if criminal behavior results from a learning process, rather than from an association process, empirical studies need not explain the causal relationship between association and behavior patterns. Instead Voss suggests that research attempting to verify differential association theory should examine the relationship between what is learned and criminal behavior.

II. THE SOCIAL LEARNING MODEL

The social learning model suggests that people learn the motives, drives, rationalizations, and attitudes that cause criminal behavior. Sutherland stated that people learn rationalizations and attitudes through contact with

other people: "A child may assimilate within the home by observation of parents or other relatives the attitudes, codes and behavior patterns of delinquency" (Sutherland, 1947:164; see also, Sutherland quoted in Cohen, 1956:23). By focusing on motives, drives, rationalizations, and attitudes, Sutherland attempted to merge "the psychiatric and sociological approaches to an explanation of criminal behavior" (Sutherland, 1947:56). The use of psychological concepts by sociologists is not unusual. As Naess (1964:180) notes, "While sociologists are less interested in motives, in internalization of role-prescriptions or in conditions within persons, they do not deny the existence of such phenomena, and also seem to imply them in their theories." Even so, Sutherland was reluctant to incorporate personality traits into his theory (Voss, 1969:389). Sutherland found difficulty in separating the individual traits learned through contact with others ("sociogenic traits," so called by Sutherland) and the individual traits which are acquired independent of contact with others ("psychogenic traits," so called by Sutherland). He writes, "there is no satisfactory definition of the psychogenic traits, and no way of differentiating them from the sociogenic traits" (Sutherland quoted in Cohen, 1956:26).

Liska (1969:492) suggests that because the causal arrangement between attitudes and behavior is empirically difficult to verify, there are two primary research objectives: "1) to identify that point in the process of

attitude strength and formation, and that degree of interactive freedom where attitudes shift from being only a function of social interactions to also directing social interaction; and 2) to discover those psychological and sociological conditions which affect attitude strength and interactive freedom." The first research objective is divided into two parts: first, to identify when attitudes are formed; and second, to identify that point in differential association when attitudes are directed towards criminal behavior rather than toward non-criminal behavior. An examination of Sutherland's propositions reveals the following: People learn "the specific direction of motives, drives, rationalizations, and attitudes" through interaction with others; and "the specific direction of motives and drives is learned from definitions of the legal codes as favorable or unfavorable" (Sutherland and Cressey, 1978:81; italics added). The term "specific direction" indicates a quality possessed by motives, drives, rationalizations, and attitudes. This quality represents "the direction of anti-criminality or criminality" acquired through association with definitions favorable or unfavorable to law violation (Cressey, 1964:20).² If Sutherland was concerned with the specific direction of learning, his propositions can be viewed as an attempt to satisfy the second part of Liska's first research objective: identify why attitudes, motivations, drives, and rationalizations are formed toward criminal behavior rather than toward anti-criminal behavior.

The second research question concerns the identification of the processes that create attitudes. Sutherland doubted whether the complete discovery of all psychological and sociological "conditions" was possible. Moreover, because psychological and sociological conditions equally explained both anti-criminal behavior and criminal behavior, Sutherland did not believe that these conditions could explain crime: "It is possible to secure only a few traits or conditions and therefore this method cannot locate the causes of crime precisely. It does not explain the mechanisms by which criminality is produced" (Sutherland, 1947:60; see also Gottfredson and Hirschi, 1990:69).

Hirschi (1969, Gottfredson and Hirschi, 1990) argues that motives, drives, rationalizations, and attitudes are internal to the individual and cannot explain criminal behavior any better than other psychological mechanisms. Hirschi (1969, Gottfredson and Hirschi, 1990) and others (Hall and Lindzey: 1978:1-29; Leahey and Harris, 1985:1-20) assert that motives, drives, rationalizations, and attitudes may be learned through social interaction, but they are psychological in nature insofar as the individual has incorporated them into the personality and are internal processes that promote behavior (see also Cohen quoted in Cressey, 1964: 69, footnote 7).

Offering a sociological interpretation of motives, drives, rationalizations, and attitudes, Cressey (1969:96-98) argues that behavior is controlled by symbolic

constructs learned through social interaction. The constructs represent participation in group experience in terms of consummation and consequences, and the degree to which a specific construct controls behavior is dependent on the degree to which experience reinforces that particular construct (Cressey, 1964:96). In this interpretation, motives, drives, rationalizations and attitudes are cognitive reflections of social outcomes and are products of group behavior (Cressey, 1964:97).

III. THE INDIVIDUAL PROCESS MODEL

The individual process model maintains that the individual internalizes the definitions held by others through associations, and an excess of internalized definitions favorable to law violation cause criminal behavior (Akers, 1973:39; Hirschi, 1969). This model suggests that people learn definitions that encourage or deter criminal behavior.

In Sutherland's theorizing, genetic processes in causation revolve around some kind of associational history in which offenders have acquired definitions favoring law violation from their peers or other persons with whom they interact. Some criminologists (e.g. Glaser, 1956) have modified the argument by claiming that some criminals learn definitions from persons with whom they identify but with whom they may not be in direct contact (Gibbons, 1971:272).

This interpretation is supported by Sutherland's suggestion that "The professional thief learns to define the situation in which criminal behavior is appropriate" (Sutherland

quoted in Cohen, 1956:23). In this perspective, the more individuals define law and norm violating behaviors as desirable rather than undesirable, the more likely they are to violate laws (Sutherland and Cressey, 1970; Johnson, 1988). Definitions are learned through interactions with peers and family, and learning is dissimilar among individuals, i.e., some individuals learn more definitions favorable to violation, while others learn more definitions unfavorable to violation (Matsueda, 1982).

According to Sykes and Matza (1957), motives, drives, and rationalizations are reflected in definitions held by individuals. Sykes and Matza (1957) argue that rationalizations, or internalized definitions, are defenses against anti-criminal norms existing in the social environment. In this perspective, some people develop definitions that operate as "techniques of neutralization" (Sykes and Matza, 1957; see also Akers, 1958:42-43). The techniques are definitions that oppose the conventional order by neutralizing the demands of conformity imposed by the conventional order (Sykes and Matza, 1957). The presence of these techniques explains why one person engages in criminal behavior while others do not: "It is by learning these techniques [of neutralization] that the juvenile becomes delinquent, rather than by learning moral imperatives" (Sykes and Matza, 1957:667; see also Vold, 1958:195).

Gibbons (1971) equates operationalizing of motives and

drives as causal agents (model four) with the use of internalized definitions as causal agents (model five),

The differential association perspective asserts that offenders learn definitions favoring violation of law from their social association. Noncriminals acquire law-abiding sentiments from a different set of experiences. This question and the answer to it is actor- or person-oriented, so that it is assumed that various learning experiences operate to put some relatively specific kind of criminal motivation or tendencies inside a person. According to this framework, deviation does not occur without motivation to deviate.... in differential association theory, definitions favorable to criminality are seen as absent or present in attenuated form in law-abiding individuals, or that they hold an excess of definitions unfavorable to violation of law (Gibbons, 1971:267).

According to Gibbons, if definitions become internal processes similar to motives, drives, rationalizations, and attitudes, they are subject to the same operationalizing problems described for the previous social learning model.

IV. THE "SOCIOLOGICAL" MODEL

The sociological model maintains that conflicting definitions in the social environment create the specific direction of motives, drives, attitudes, and rationalizations and that an excess of definitions in the environment favorable to law violation promotes criminal behavior. In this view, definitions are "social messages," or "group value schemes" by which behavior is evaluated (Vold, 1958:197). Akers (1958:54) interprets definitions as normative meanings that are used for evaluating behavior.

For Sutherland, the criteria for evaluation exist in the peer structure external to the individual, "There is a good deal of evidence that for most people, standards are determined by persons of their own status, who are in intimate association with them...." (Sutherland quoted in Cohen, 1956:170). In this interpretation, Sutherland's sixth proposition is pivotal: "A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law." This is a statement of opposing social forces, rather than a statement of internalized processes (Sutherland, 1947; see also, Sutherland in Cohen, 1956). Sutherland suggests that the criminal exists between two systems of opposing rules: "Differential association... is a statement of culture conflict from the point of view of the person who commits the crime. The two kinds of culture impinge on him or he has associations with the two kinds of cultures, and this is differential association" (Sutherland quoted in Cohen, 1956:21). In the sociological interpretation, Sutherland's theory avoids explaining criminal behavior in terms of internalized processes.

In the sociological model, differential association theory focuses on the interactions among people (Vold, 1958:192; Naess, 1964). Emphasizing the social process of learning, Burgess and Akers (1966) reformulated of Sutherland's propositions using stimulus-response theory. Burgess and Akers' differential-association-reinforcement

theory (social learning theory) asserts that interactions influence behavior through a system of rewards and punishments that controls and maintains behavior (Burgess and Akers, 1966). The reformulation differentiates between operant behavior and respondent behavior, where operant behavior is controlled by stimulus following the behavior, and respondent behavior is controlled by stimulus preceding the behavior (Burgess and Akers, 1966:48). By linking preceding stimuli with behavior, people become conditioned to elicit operant behavior (Hall and Lindzey, 1978:575-90). Rewards are stimuli that increase behaviors, and punishments are stimuli that decrease behaviors (Burgess and Akers, 1966:50-51). Rewards and punishments operate as operant stimuli, and exist in the social environment as part of the process of interaction (Burgess and Akers, 1966). However, because social learning theory is incapable of explaining why certain stimuli are rewarding and other stimuli are repressive, Hirschi (1969:14, footnote 40; Gottfredson and Hirschi, 1990:66-69) argues that social learning theory leads to a tautology, whereby individuals learn to define things as "positive or good" through experience, and once individuals create definitions, definitions cause behaviors that, in turn, cause experience.

Glaser (1956) provides an interpretation of differential association theory that adopts the concepts of social psychology. Glaser suggests,

A person pursues criminal behavior to the

extent that he identifies himself with real or imaginary persons from whose perspective his criminal behavior seems acceptable (Glaser, 1956:443-444).

Glaser suggests the process of identification results from social interaction and calls this "differential identification" (Stratton, 1967). Because behavior is controlled in terms of interaction with others, Glaser's model includes terms such as "referent group" and "peer expectation" rather than the term, "operant stimuli" (Mathews, 1968:337; Adams, 1973:463). Following Glaser, Naess (1964) reformulates differential association theory applying role theory, and interprets Sutherland's description of the impact of the social environment on the individual in terms of peer expectation: "A person enacts criminal behavior to the extent that the criminal role has been prescribed to him more strongly than the non-criminal role" (Naess, 1964:174). In Naess's reformulation, roles are imposed on individuals rather than constructed by the individual.

Although assimilation of the culture may include an internalization process, other sources of motives, drives, rationalizations and attitudes are present. Biological processes are one possible source of motives, drives, and attitudes (e.g., hunger and taste). Gibbons (1971:272) suggests rationalizations and attitudes can emerge from experience, where "initial flirtations with deviance" produce criminal definitions and "the offender may supply

his own reinforcement of these merging sentiments." The sociological model does not argue that internalized processes do not take place. Rather, it does not assume that these processes are necessary for an explanation of crime. Although Sutherland states that motives, drives, rationalizations, attitudes and definitions can be learned through association, his propositions focus on the direction that they take rather than on the internalized processes themselves. This model suggests only that the specific direction of motives, drives, rationalizations, and attitudes are learned.

Sutherland's 1939 version of differential association theory included both the sociological and psychological models of criminal behavior, and in the 1947 version, he separated the sociological model from a social psychological model, calling the former "differential social organization" and the latter, "differential association." Sutherland's "differential social organization" is an explanation of crime in terms of "community, nation, or other" (Sutherland quoted in Cohen, 1956: 11). This focus at the aggregate level leads research efforts to examine rates of violation rather than individual acts of committing crime.

With any possible combination of values in the area, conventional persons will be found at one extreme of the continuum and non-conventional persons at the other, with an infinite variety of combinations between. It should be noted that from this perspective the alleged problem of accounting for delinquency in non-delinquency areas, or non-delinquency in delinquency areas, does not exist. This approach to the problem has

several values. First, it draws attention to the fact that in areas of conflicting value systems predictions about conduct can be made only in terms of proportions of the population and not for particular individuals; second, it draws attention to the fact that most persons can be expected to participate, in varying degrees, in activities representing both value systems and seldom in one or the other exclusively, and finally, it draws attention once more to the fact that the difference between the delinquent and the non-delinquent is only one of degree. Almost all children participate in some violative behavior (McKay, 1960:28).

As an explanation of rates of crime, differential social organization asserts "that crime is rooted in the social organization and is an expression of that social organization" (Sutherland, 1947:8). Vold (1958:192) suggests differential organization theory is "an attempt to explain crime rates among certain groups rather than an attempt to explain why a certain individual behaves at a certain time in a certain manner." The sociological model reflects this interpretation, and resembles Sutherland's idea of differential social organization.

NOTES TO RESEARCH APPENDIX

1. More specifically, in reference to why prison guards do not have higher rates of crime than inmates Sutherland states, "In the first place, I am not sure that they [prison guards] have a low crime rate, and second they may not have frequent contact with criminal patterns even though they have contact with criminals..." (Cohen 1956:24). In other words, association with criminal patterns causes criminal behavior, and not association with criminal individuals. Sutherland further specifies "patterns" to indicate the techniques of committing the crime and the specific direction of motives, drives, rationalizations, and attitudes (see Cohen:23-26).
2. Sutherland argues that non-criminal, or criminal neutral, experiences play, at best, a negligible role in criminal behavior, and instead, that only anti-criminal or pro-criminal experiences affect criminal behavior.

APPENDIX A
ORIGINAL MEASURES AND CORRESPONDING FREQUENCIES

APPENDIX A

Original Measures and Corresponding Frequencies*

	STRONGLY DISAGREE			STRONGLY AGREE		MISSING
	1	2	3	4	5	9
The drinking age for alcohol should be lowered or eliminated.	16.4 (119)	17.4 (126)	9.5 (69)	33.0 (239)	23.7 (172)	(4)
Marijuana should be made legal.	36.5 (263)	22.1 (159)	17.3 (125)	12.6 (91)	11.5 (83)	(8)
Cocaine should be made legal.	78.2 (568)	10.3 (75)	5.1 (37)	4.1 (30)	2.2 (16)	(3)
Alcohol can hurt the user only if he or she uses it too heavily.	14.2 (103)	33.9 (245)	5.4 (39)	34.6 (250)	11.9 (86)	(6)
Marijuana can hurt the user only if he or she uses it too heavily.	27.3 (198)	35.6 (258)	8.7 (63)	20.4 (148)	7.9 (57)	(5)
Cocaine can hurt the user only if he or she uses it too heavily.	63.2 (457)	25.3 (183)	5.8 (42)	3.2 (23)	2.5 (18)	(6)
Alcohol is OK if one uses it in the privacy of his or her own home.	4.7 (34)	10.6 (76)	13.5 (97)	41.9 (300)	29.2 (209)	(13)
Marijuana is OK if one uses it in the privacy of his or her own home.	33.9 (245)	25.0 (181)	13.4 (97)	16.7 (121)	10.9 (79)	(6)
Cocaine is OK if one does it in the privacy of his or her own home.	67.2 (486)	19.9 (144)	6.5 (47)	4.3 (31)	2.1 (15)	(6)
Drinking Alcohol is acceptable if it is done at the proper time, such as on weekends, or when one is not driving.	3.2 (23)	5.0 (36)	7.9 (57)	45.2 (328)	38.8 (282)	(3)
Marijuana is OK if it is used at the proper time, such as on weekends, or when one is not driving.	34.4 (249)	28.2 (204)	10.5 (76)	18.5 (134)	8.3 (60)	(6)
Cocaine is OK if it is used at the proper time, such as on weekends, or when one is not driving.	76.6 (556)	16.1 (117)	4.7 (34)	1.7 (12)	1.0 (7)	(3)

*Valid percentages and parenthetical n

APPENDIX B

PROPORTIONS OF DRUG USE AMONG RESPONDENTS HAVING DEFINITIONS
FAVORABLE TO DRUG USE AND THOSE WHO DO NOT HAVE DEFINITIONS
FAVORABLE TO DRUG USE

APPENDIX B

Proportions of Drug Use Among Respondents Having Definitions
Favorable to Drug Use and Those Who Do Not Have
Definitions Favorable to Drug Use

Definition Category	<u>Alcohol</u> (n=724)		<u>Marijuana</u> (n=728)		<u>Cocaine</u> (n=728)	
	Defs	No Defs	Defs	No Defs	Defs	No Defs
I	98%	91%	76%	27%	30%	7%
II	99%	93%	66%	28%	37%	7%
III	98%	89%	77%	25%	41%	7%
IV	98%	84%	78%	25%	42%	8%

Categories

- I : Those favorable definitions concerning legal consequences.
- II : Those favorable definitions concerning the physical or social consequences.
- III: Those favorable definitions concerning the social context of drug use relating to place.
- IV : Those favorable definitions concerning the social context of drug use relating to time.

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